- 84. The gas microbubbles as claimed in claim 81, wherein said surfactant is in the form of thin films involving one or more molecular layers.
- 85. The gas microbubbles as claimed in claim 81, wherein said surfactant is in the form of mono- or pluri- molecular membrane layers.
- 86. The gas microbubbles as claimed in claim 81, wherein said surfactant is a phospholipid.
- 87. The gas microbubbles as claimed in claim 81, wherein said surfactant comprises at least one phospholipid.
- 88. The gas microbubbles as claimed in claim 86, wherein said phospholipid is selected from the group consisting of lecithin, phosphatidic acid, phosphatidyl-inositol phosphatidyl-ethanolamine, phosphatidyl-serine, phosphatidyl-glycerol, cardiolipin, sphingomyelins, the plasmogens, and the cerebrosides.
- 89. The gas microbubbles as claimed in claim 87, wherein said phospholipid is selected from the group consisting of lecithin, phosphatidic acid, phosphatidyl-inositol phosphatidyl-ethanolamine, phosphatidyl-serine, phosphatidyl-glycerol, cardiolipin, sphingomyelins, the plasmogens, and the cerebrosides.
- 90. Gas microbubbles comprising an amphipatic surfactant and a physiologically acceptable gas comprising an organic compound containing one or more carbon atoms and fluorine wherein the microbubbles comprising the gas are stabilized by the surfactant.
- 91. The gas microbubbles as claimed in claim 90, wherein said surfactant is film forming.
- 92. The gas microbubbles as claimed in claim 90, wherein said surfactant is capable of forming stable films in the presence of water and gas.

- 93. The gas microbubbles as claimed in claim 90, wherein said surfactant is in the form of thin films involving one or more molecular layers.
- 94. The gas microbubbles as claimed in claim 90, wherein said surfactant is in the form of mono- or pluri- molecular membrane layers.
- 95. The gas microbubbles as claimed in claim 90, wherein said surfactant is a phospholipid.
- 96. The gas microbubbles as claimed in claim 90, wherein said surfactant comprises at least one phospholipid.
- 97. The gas microbubbles as claimed in claim 95, wherein said phospholipid is selected from the group consisting of lecithin, phosphatidic acid, phosphatidyl-inositol phosphatidyl-ethanolamine, phosphatidyl-serine, phosphatidyl-glycerol, cardiolipin, sphingomyelins, the plasmogens, and the cerebrosides.
- 98. The gas microbubbles as claimed in claim 96, wherein said phospholipid is selected from the group consisting of lecithin, phosphatidic acid, phosphatidyl-inositol phosphatidyl-ethanolamine, phosphatidyl-serine, phosphatidyl-glycerol, cardiolipin, sphingomyelins, the plasmogens, and the cerebrosides.
- 99. A contrast agent comprising an aqueous suspension of stabilized gas microbubbles, said microbubbles comprising a physiologically acceptable gas comprising an organic compound containing one or more carbon atoms and fluorine, said microbubbles being stabilized in part by mono- or pluri- molecular membrane layers of one or more phospholipids.

- 100. A process for preparing contrast agent which comprises generating gas microbubbles by entrapping a physiologically acceptable gas comprising an organic compound containing one or more carbon atoms and fluorine with an amphipatic surfactant.
- 101. A process for preparing contrast agent which comprises generating gas microbubbles comprising a physiologically acceptable gas comprising an organic compound containing one or more carbon atoms and fluorine by stabilizing the microbubble with an amphipatic surfactant.
- 102. A method of enhancing ultrasound images comprising

administering to a subject a diagnostic ultrasound contrast agent comprising the gas microbubbles of claim 81; and

obtaining an ultrasonic image of said subject.

103. A method of enhancing ultrasound images using an ultrasonic contrast agent, said contrast agent comprising gas microbubbles comprising an amphipatic surfactant and a physiologically acceptable gas comprising an organic compound containing one or more carbon atoms and fluorine wherein the gas is entrapped by the surfactant;

said method comprising administering said contrast agent to a subject; and obtaining an ultrasonic image of said subject.

104. A method of enhancing ultrasound images using an ultrasonic contrast agent, said contrast agent comprising gas microbubbles comprising a physiologically acceptable gas comprising an organic compound containing one or more carbon atoms and fluorine wherein the gas microbubbles are stabilized by an amphipatic surfactant;

said method comprising administering said contrast agent to a subject; and obtaining an ultrasonic image of said subject.

- 105. Gas microbubbles prepared by the process of admixing a liposome solution comprising hydrogenated soya lecithin and dicetylphosphate with a mixture comprising water and a physiologically acceptable gas.
- 106. Gas microbubbles prepared by the process of sonicating a solution comprising hydrogenated soya lecithin and dicetylphosphate, cooling the solution,

shaking the solution in the presence of a physiologically acceptable gas at above atmospheric pressure.

- 107. Gas microbubbles prepared by the process of immersing glass beads in a solution of dipalmitoylphosphatidylcholine in chloroform, rotating the beads under reduced pressure to evaporate the chloroform, rotating the beads under atmospheric pressure with a physiologically acceptable gas, adding distilled water to the solution, and removing the beads from the solution.
- 108. Gas microbubbles prepared by the process of

adding a viscosity enhancer to the solution,

forming a liposome/maltose solution by adding a liposome solution comprising hydrogenated soya lecithin and dicetylphosphate to a maltose solution in distilled water, freezing the liposome/maltose solution,

forming lyophilized powder by lyophilizing the liposome/maltose solution under reduced pressure,

restoring pressure to the lyophilized powder with a physiologically acceptable gas, dissolving the lyophilized powder in water.

109. Gas microbubbles prepared by the process of

forming a mixed solution prepared by mixing a solution of liposome comprising hydrogenated soya lecithin and dicetylphosphate with an aqueous solution of gelatin, human albumin, dextran, and iopamidol,

lyophilizing the mixed solution to form a lyophilized sample, introducing a physiologically acceptable gas into the lyophilized sample, mixing the lyophilized sample with water.

110. Gas microbubbles prepared by the process of

forming a mixture by moistening lactose with a solution of chloroform, dimyristoylphosphatidylcholine, cholesterol, dipalmitoylphosphatidic acid,

evaporating the mixture under vacuum to form a powder, rotating the powder under a physiologically acceptable gas at normal pressure, and dissolving the powder in water.

111. Gas microbubbles prepared by the process of

sonicating an aqueous solution of hydrogenated soya lecithin and a nonionic polyoxyethylene-polyoxypropylene copolymer surfactant,

cooling the solution,

centrifuging the solution,

forming a mixture by adding the aqueous solution to a maltose solution in water, freezing the mixture,

evaporating the mixture under reduced pressure,

restoring pressure to the mixture with a physiologically acceptable gas. --